\$/137/62/000/004/035/201 A006/A101

AUTHORS:

Kalabushkin, V. S., Pikunov, M. V.

TITLE:

Filtration of metal

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 38, abstract 40246

("Sb. nauchn. tr. In-t tsvetn. met. im. M. I. Kalinina", 1960,

v. 33, 285 - 288)

The authors studied the permeability of lump filters. The investi-TEXT: gation method consisted in passing a definite quantity of liquid metal (5 - 7 kg) through a layer of lump material; and in recording the filtration time. The filtration rate was then calculated according to formula

> $\omega = G/x \tau F \text{ cm/sec}$ (1)

where G is the weight of the filtered metal, in g;  $\chi$  is the specific metal weight; T is the filtration time, sec; F is the cross-sectional area of the filter in cm2: Aluminum was used as test metal; its specific weight at 750 -800°C is 2.38 g/cm3. The filter material was crushed magnesite of fraction 4, with lump sizes d within a range of 0.5 - 0.8; 0.8 - 1.0; 1.0 - 1.5 and 1.5 -

Card 1/2

Filtration of metal

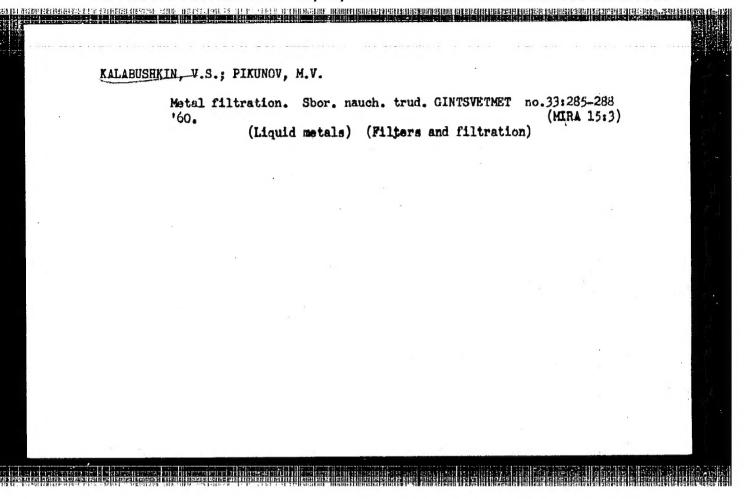
S/137/62/000/004/035/201 A006/A101

20 cm. The magnesite lumps were placed in a steel tube of 50 mm in diameter, at whose lower end a steel net was fixed to retain the magnesite. The assembled filter was heated to 850°C prior to the test. For laminar filtration  $\omega=KJ$ ; for turbulent filtration  $\omega=A$   $\sqrt{aJ}$ , where  $K=ad^2$ , J=(h+H)/H. In the cases investigated, the filtration rate was calculated by formula  $\omega=(4.45+0.01\ h^2+0.001\ H^2)$  [(h+H)/H]  $\sqrt{d}$ . The metal discharge through the filter should be derived by formula (1).

Svodtseva

[Abstracter's note: Complete translation]

Card 2/2



KALALUSHKINA, L.A.

Combined wound of the heart and organs of the abdominal cavity.

Khirurgite Supplement:10 '57. (MIRA 11:4)

1. Is khirurgicheskogo otdeleniya Uglichskoy gorodskoy i rayonnoy

bol'nitay.

(HRART--WOUNDS AND INJURIES)

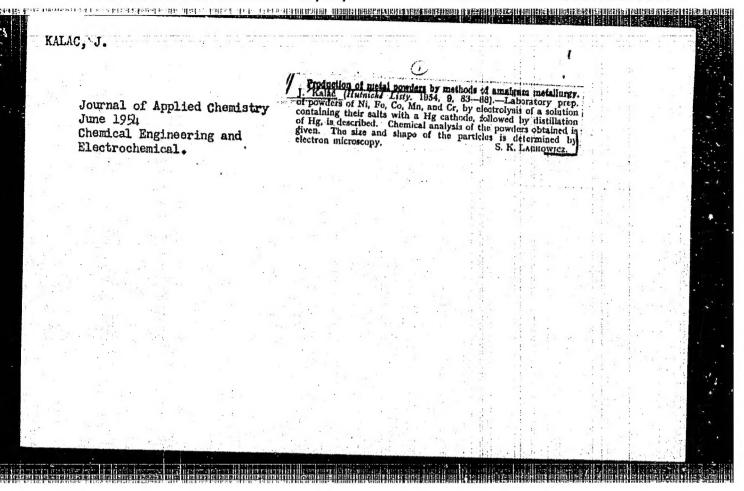
(ABDOMEN--WOUNDS AND INJURIES)

KALABUSOVA, M. SULC, J.

Drying of acidophilus milk by spraying. p. 292.

(Prumysl Potravin. Vol. 8, no. 6, 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.



MALAGO, STIMLINGVA, J.

前6二次

no sozdanio degrees indicated

State tertile research Institute (States vysloamy unter), Idleres, Internitory at Bratislava, and department of phonoscology (katerin farmonic) of SULE, Britislava

Bratislava, Farmacoutlety Cheer, No 11-12, 1962, pp 161-166

"Characteristics of the Flor Medice"

#### CZECHOSLOVAKIA

and the state of t

### KALAC, J.; ZIMANOVA, J.

H產性 1945 a

1. Scientific Research Institute, Faculty of Pharmacy, Karlova University (Vedeckovyakumny ustav Farmaceutickej fakulty UK) (for Kalac); 2. Institute for the Further Education of Physicians and Pharmacias, Faculty of Pharmacy (Ustav pre dalsie vadelavanie lekarov a farmaceutov, Katedra farmacie), Bratislava

Bratislava, Parassetisky obser, No 8/9, August-September 1965, pp 362-68

"Properties of linseed smein (l'anovêhe smeins). Part 5: On the interaction) of the smein and d-sorbit in solutions and in x-ray contrast materials."

and the control of the state of

CZECHOSLOVAKIA / Organic Chemistry. Natural Substances G and Their Synthetic Analogues.

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 61104.

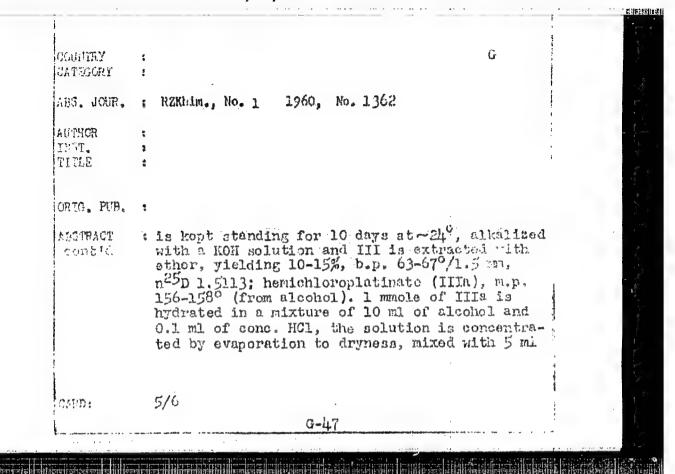
Abstract: of III was 52%, boiling point 169 to 170°/0.1 mm,  $n^{22}D = 1.4473.$ ). The reduction cyclization of 0.1 mole of III in 300 ml of absolute dioxane (5 g of Raney's catalyst, 80 atm, 80°, 2 hours) results in 2-(\$\beta\$-carbethoxy-\$\sigma\$-methoxymethylethyl)--pyrrolidone-5 (IV), yield 82%, boiling point - 185 to 188°/0.5 mm,  $n^{22}D = 1.4752.$  0.075 mole of IV in 200 ml of absolute ehter is added drop by drop to the suspension of 0.25 mole of LiAlH4 in 200 ml of absolute ether and boiled 5 hours; after cooling, it is decomposed with water, alkalized (150 ml of 55%-ual KOH), the aqueous layer is ex-

Card 2/4

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	AUTHOR	: Babor, K.; Jos	zo. I.; Kalac, V.; Ka	rvas, M.	
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	RETLE	: Synthesis of 3	Some Alkaloid Derivat	ives. XVI.	
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	our Triancon	· Official 2 vests,	1757, 15, 10 35 205	7.17 /	•
Company of the Compan	A BSTRACT	tives was cam of ring closur approximating tion of the sy hypothesis (So 32) regarding substances of	of 1-methylpyrrolysicied out, during which re was effected under physiological ones. In the size appeared to the biogenesis of all the general formula.	th the stage of conditions. The realizations worify Schöpfinie, 1949, 61, kaloids from CHO(CH <sub>2</sub> ) <sub>K</sub> NK-	3
*		(GH <sub>2</sub> ) <sub>X</sub> GHO; the	e correctness of this	s hypothesis	:
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APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000620010010-1"

CONTRY G CATHGORY ARS. JOUR. : RZKhim., No. 1 1960, No. 1362 AUTHOR 71.37. TITLE CORLO. POB. : pH>5, II does not cyclize, and at pH<': the polymerization products of II are forms: the initial G1 (GHz) 3GHO, b.p. 52-54/12 mm, was LABSTRACT G. 3516 synthesized by oxidation of cl(siz) to the Cr03 in CHaCOOH. The mixture of 0.05 mole of Ia, 0.5 mole of Ib, 0.05 mole of KI and 0.1 mole of potash in 150 ml of abs. alcohol is boiled for 20 hours, diluted with water, and CARD: 3/6 0-16



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KALAC, VLADIMIR

Country: Onechorlovatia

Academic Degrees:

Affiliation:

Source: Bratislava, Masa Veda, Vol VIII, No 5, 1961, pages 277-280.

Data: "Medicinal Plants and Drugs."

Authors: BABOR, Karol, Engr, S.SC., Chemical Institute, SAV /Slovenska akademia ved; Slovak Academy of Sciences/ (Chemicky ustav SAV), Bratislava.

KALAC, Vladimir, Engr, C.SC., Chemical Institute, SAV.

BABOR, Karel, inz., C.Sc.; JEZO, Ivan, dr., inz., C.Sc.; KALAC, Vladimir, inz., C.Sc.; KARVAS, Milan, inz.; TIHLARIK, Karel, inz.

Synthesis of certain alkaloid derivates, Part 20, Chem zvesti 15 no.10: 721-724 0 '61.

1. Oddelenie chemie prirednych latek Chemickeho ustavu Slevenskej akademie vied, Bratislava. Aughots¹ address: Bratislava, Mlynske nivy 37, Chemicky ustav Slovenskej akademie vied.

SEFCOVIC, Pavel, dr., inz., C.Sc.; BABOR, Karel, inz., C.Sc.; KALAC, Vladimir, inz., C.Sc.; DUBRAVKOVA, Libusa, inz., Sc.C.

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Preparation of antiarrhythmic substances. Part 2. Chem swesti 15 no.10: 725-729 0 '61.

1. Ceskoslovenska akademie ved, Oddelenie chemie priradnych latek. Chemickeho ustavu Slovenskej akademie vied, Bratislava, Authers' address: Bratislava, Mlynske nivy 37, Chemicky ustav Slovenskej akademie vied.

BABOR, Karol, inz. C.Sc., KALAC, Vladimir, inz., C.Sc., TIHLARIK, Karol, inz., C.Sc.

Contribution to periodate oxidation of sascharides. Pt.l. Chem zvesti 18 no.12:913-917 '64.

1. Division of Chemistry of Polysaccharides, Institute of Chemistry, Slovak Academy of Sciences, Bratislava, Dubravska cesta.

BABOR, Kerol: KALAC, Vladimir: TIHLARIY, Yerol

Preparation and use of starth dialdehyde. Th. 1. Listy cukrovar 80 no.10:265-269 0 %64.

1. Institute of Chemistry, Slovak Academy of Sciences, Bratislava.

BABOR, Karol; KALAC, Vladimir; TIHLARIK, Karol

Preparation and use of dialdehyde of starch. Pt.2. Listy cukrovar 81 no.2:30-33 F 165.

1. Institute of Chemistry of the Slovak Academy of Sciences, Bratislava. Submitted September 9, 1964.

<b>.</b>	1711-66 RM	
AC	DESSION HR: AP5024260 28,0034/01/000/012/0913/0927	
AU (K	MOR: Babot, K. (Engineer, Candidate of sciences) (Bratislava); Kalac, V. (Alack, K. (Tiglarik, K.)	
(E	ngineer, Cardidate of sciences)(Bratislava)	
TI	TIE: Contribution to the exidation of saccharides by iodates. (I). Iodametric termination of small quantities of formic acid using amperometric indication	
	URCE: Chemicke zvesti, no. 12, 1964, 913-917	
震	PIC TAGS: formic acid, analytic chemistry, electrode, oxidation, lodate, poly-	
	ccharide	3. 注 图:
AB	STRACT: The authors describe a method that they developed for the determination formic acid, using a couple of polarized platinum electrodes. The method is	
€ fa	st, accurate and suitable for investigations of structure of polysaccharides. ig. art. has: 3 tables.	
AC	SOCTATION: Chemicky ustay slovenskej akademie vied. Oddeleniu chemie polysauba-	
27	dov, Bratislava (Department of Polysacoharides, Institute of Chemistry, Slovik ademy of Sciences)	
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KALACEVIC, I.; VRBASKI, Lj.

Amylolytic activity of Amylomyces rouxii and Rhizopus sp-907 in the surface and submerged cultivation. Kem ind 13 no.4:274-276  $^{\rm A}p^{-1}64_{\rm *}$ 

Correlation between the time and amylolytic power of the dry, untreated Amylomyces rouxii and Rhizopus sp-907 material. Ibid.: 277-278,

1. Chair of Microbiological Processes, Technological Faculty, Novi Sad.

KALACEVIC, IVNA

YUGOSLAVIA / Chemical Technology, Chemical Products H and Their Application, Part 3. - Fermen-

tation Industry.

Abs Jour: Ref Zhurnal Khimiya, No 18, 1958, 62525.

Author : Vojislav Krajovan, Ivka Kalacevic.

Inst : Not given.

Title : Alcohol Fermentation of Hydrolysis Products of

Maize Starch.

Orig Pub: Kemija u industriji, 1957, 6, No 10, 304 - 306.

Abstract: Experimental indices of alcohol production from

hydrolysis products of maize starch obtained with the application of acid, malt or mold cultures separately and together are presented.

Card 1/1

10

KALACEVIC, Ivka, ing.; JOHANIDES, Vera, dr.,ing.

The state of microflora in some of our fruit and vegetable processing industries. Kem ind 9 no.8:207-216 Ag '60.

1. Zavod za prehrambenu industriju. Zagreb.

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KALACEVIC, Ivka, ing.

Possibilities of the application of some new disinfictants in our fruit and vegetable processing industries and the examination of their bactericidal (bacteriostatic) power. Kem ind 9 no.8:216-225 Ag '60.

1. Zavod za prehrambenu industriju, Zegreb.

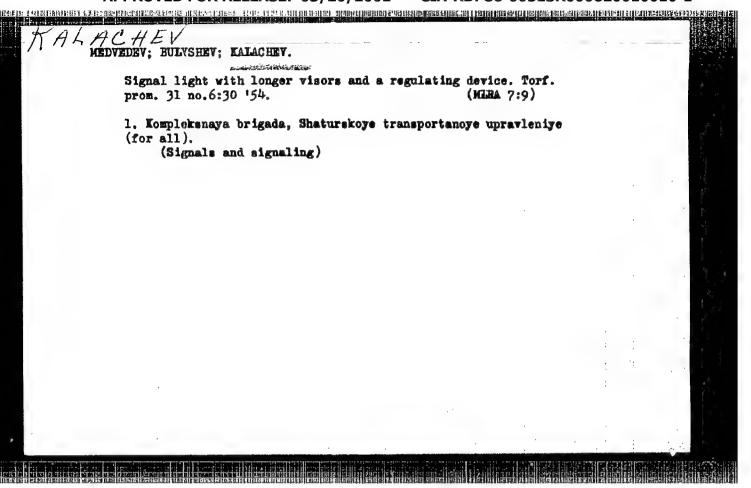
KALACEVIC, I., dipl. inz.

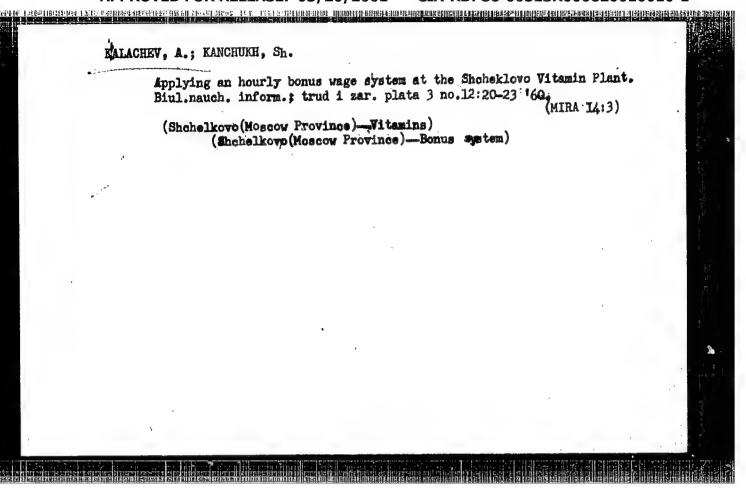
Influence of nutrient mediums on the sporulation velocity of bakery and brewery yeasts. Kem ind 13 no. 6:409-413 Je '64.

1. Faculty of Technology, Novi Sad.

VOL'FKOVICH, S.I.; KALACH, V.S.

Production of compound fertilizers by the fusion of urea and potassium phosphates. Khim. prom. 40 no.9:676-678 S 164. (MIRA 17:11)





## KALACHEV, A.

New service of the Main Administration of Automotive Transportation in Moscow. Za bezop.dvizh. 5 no.8:7 Ag '62. (MIRA 15:8)

l. Nachal'nik otdela bezopastnosti dvizheniya Sluzhby lineynogo kontrolya i bezopasnosti dvizheniya Moskvy.

(Moscow--Traffic safety)

KALACHEV, A.; MAKOVSKIY, I., inzh.

In exchange for traffic safety corners. Za bezop-dvish. 5 no.11:12-13 N \*62. (MIRA 15:12)

1. Nachal nik otdela bezopasnosti dvizheniya Glavnogo upravleniya avtomobil nogo transporta Moskovskogo gorodskogo soveta deputatov trudyashchikhsya (for Kalachev). 2. Otdel bezopasnosti dvicheniya Glavnogo upravleniya avtomobil nogo transporta Moskovskogo gorodskogo soveta deputatov trudyashchikhsya (for Makovskiy).

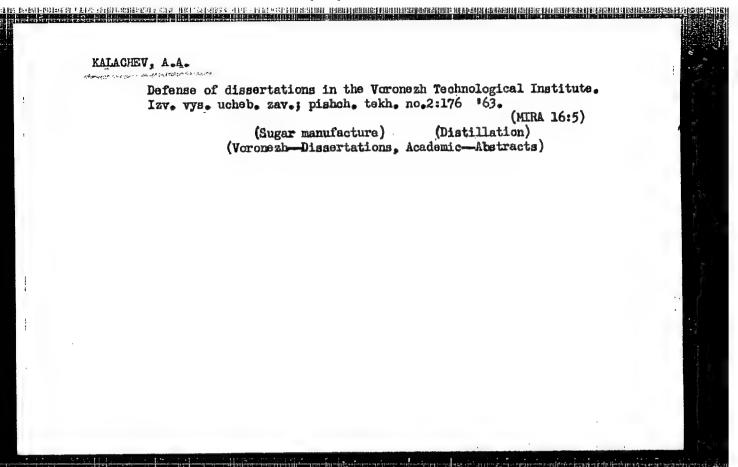
(Moscow-Traffic safety-Study and teaching)

KALACHEV, A.

Indulgence makes a breach. Za bezop. dvizh. 5 no.6:12-13 Je '62. (MIRA 15:10)

1. Nachal'nik otdela besopasnosti dvisheniya Glavnogo upravleniya avtomobil'nogo transporta Moskovskogo gorodskogo Soveta deputatov trudyashchikhsya.

(Moscow-Traffic accidents)



ZVEREV, V. A. and MATACHEV, A. L.	
"Frequency Modulation Applied to Acoustic Measurements."	4 To 10 To 1
<i>t</i>	
paper presented at the 4th All-Union Conf. on Acoustics, Moscow, 26 May - Jun 58.	
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存地位于一个时间,这个人的一个人,这个人的一个人的,我们也是一个人的,我们也是一个人的,我们也不是一个人的,我们也没有一个人的,我们也没有一个人的,我们也没有一个人的人的人,这个人的人们的人,我们也没有一个人的人,我们也没有一个人的人,我们也没有一个人的人,我们也没有一个人的人,我们也没有一个人的人,我们也没有一个人的人,我们也没有一个人的人,我们也没有一个人的人,

SOV/46-4-4-4/20

AUTHORS:

Zverev, V.A. and Kalachev, A.I.

TITLE:

Measurement of the Interaction of Sound Waves in Liquids (Izmereniye

vzaimodestviya zvukovykh voln v znidkoctyakh)

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol 4, Nr 4, pp 321-324 (USSR)

ABSTRACT: Zverev and Gcrelik (Ref 1) showed experimentally that if a highfrequency wave field interacts at right-angles with a low-frequency field, then the high-frequency wave is phase modulated. The present paper describes an approximate calculation and quantitative measurements of such an interaction. This interaction is due to non-linearity of the medium which appears as non-linearity of the hydrodynamic equations and the equation of state. The equation-or-state non-linearity predominates and calculations are based on the assumption that the hydrodynamic non-linearity can be neglected. The phase modulation of the high-frequency wave is due to a periodic change of its velocity in the field of the stronger low-frequency wave. The waves studied by the authors had frequencies of 1.3 x  $10^6$ c/s and 3 x  $10^3$ c/s respectively. The experimental technique employed followed Ref 1. The apparatus used is shown schematically in Fig 1. It consists of a high-frequency generator 1, a rhane-shifter 2, a high-frequency amplifier 3, a balancing

Card 1/3

Measurement of the Interaction of Sound Waves in Liquids

SOV/46-4-4-4/20

amplifier 4, a detector 5, a low-frequency amplifier and filter 6, a ZG-10 low-frequency generator 7, a VKS-7 value voltmeter 8, a LV-9 valve voltmeter 9, a Plexiglas bath 10, a quartz vibrator (producing  $1.3 \times 10^6 \text{c/s}$ ) 11, a quartz receiver 12, beliews 13 and an electrodynamic vibrator (producing 5 x 103c/s) 14. Measurements were made in tap (mains) water, in 93.5% ethyl alcohol, and in 21.6% NaCl solution. Fig 3 gives the vertical distribution of pressure above the centre of the high-frequency vibrator. The ordinate give the values of the logarithm of the voltage produced by a BariO3 probe used to measure pressure, while the abscissa gives the distance from the vibrator. Distribution of pressure (in bars) along a horizontal line away from the high-frequency vibrator is given in Fig 4. In both Figs 3 and 4 curves 1, 2 and 3 denote tap water. NaCl solution and ethyl alcohol respectively. The pressure distributions given in Figs 3 and 4 show that the high-frequency waves are not planar. This fact was allowed for in calculations of the rate of change of the sound velocity c with pressure p (dc/dp). The value of de/dp was obtained from the measured phase modulation of the high-frequency wave. The results obtained are given in a table on p 324. The sixth column gives the values of dc/dp

Card 2/3

 Measurement of the Interaction of Sound Waves in Liquids

SOV/46-4-4-4/20

obtained by the gresent authors; the seventh column gives dc/dp calculated from static measurements described in Refs 2, 3. From the results obtained the values of the constant b which occurs in the equation of state  $P = ap + bp^2$  (P and p are departures of pressure and density from their equilibrium values,  $a = a_2^2$  = the square of sound velocity at infinitely small densities and b = a constant for a given medium) were obtained for the three liquids investigated. The values of b and b/a are given in the third and fourth columns of the table. The values of the ratio B/A which occurs in the equation of state  $P = Ap/p_0 + (B/2)(p/p_0)^2$  were also obtained and are given in the fifth column of the table. The latter equation of state comes from Ref 4. The authors estimate the accuracy of their values of dc/dp to be 17%. There are 4 figures, 1 table and 5 references, 3 of which are American and 2 Soviet.

ASSOCIATION: Gor'kowskiy gosudaratvennyy university; (Gor'kiy State University)

SUMMITTED: September 13, 1957

Card 3/3

ZVEREV, V.A., KALACHEV, A.I.

Application of frequency modulation to accustic measurements.
Akust. zhur. 6 no.2:205-212 '60. (MIRA 13:8)

1. Hauchno - issledovatel'skiy radiofizicheskiy institut pri
Gor'kovskom gosudarstvennom universitete.

(Sound waves)

### KULAGIN, S.G.; KALACHEV. A.I.

Studying latitude variations by means of an optical analyser.

Astron.tsir. no.209:18-20 Mr 160. (MIRA 13:9)

1. Gor'kovskaya shirotnaya stantsiya Vsesoyuznogo astronomogeodezicheskogo obshchestva im.K.K.Dubrovskogo i Nauchno-issledovatel'skiy radiofizicheskiy institut, Gor'kiy. (Latitude variation)

39993 8/035/62/000/008/012/090 A001/A101

3,1220

AUTHORS:

Kulagin, S. G. Kalachev, A. I.

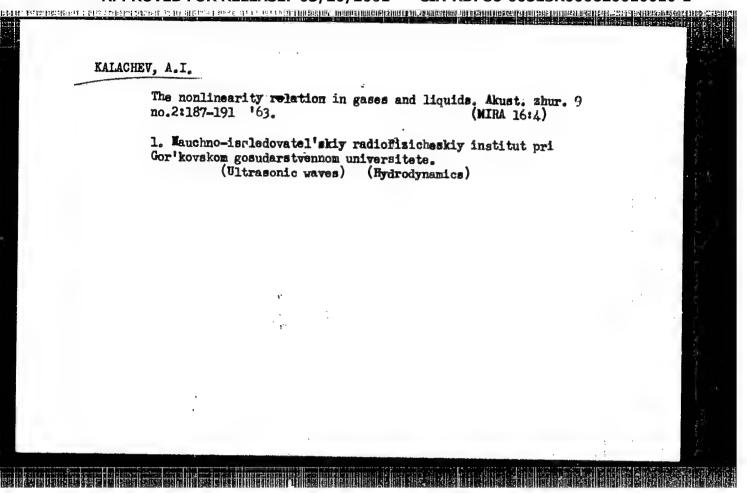
TITLE:

Application of an optical analyzer to studying latitude variations

PERIODICAL:

Referativnyy zhurnal, Astronomiya i Geodeziya, no. 8, 1962, 18, abstract 8A146 (In collection: "Predvarit. rezul'taty issled. kolebaniy shirot i dvizheniya polyusov Zemli, no. 2, Moscow, AN SSSR, 1961, 125 - 129, English summary)

TEXT: A special device, optical spectral and correlation analyzer, is proposed for the analysis of astronomical phenomena with respect to their periodicity and for calculations of amplitudes and phases of their periodic components. Three afilms are drawn in front of the aperture, whose length is  $\hat{D}$ , of the optical analyzer. The process  $\varphi$  (x) being investigated is recorded on the one of the rilms, a sinusoidal signal with a smoothly varying frequency is presented on the second film (filter film), and the third one contains a sinusoidal signal in two halves in anti-phase. The aperture is illuminated with a light source, and the current at the output of photoelements is recorded. When the filter film moves relative to two other fixed ones at a certain speed V, the current at the output of photoelements contains three components which correspond to the main frequency and two



POGOSTIN, S.Z.; KALACHEV, A.N.

Ways of mobilizing reserves in the production of ascorbic acid.
Med. prom. 17 no.9:12-15 S'63. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut tekhniko-ekonomicheskikh issledovaniy po khimii i Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut.

KALACHEV, B.A.; GUSENKOV, Ye.P.

[Method of determining soil salinity with Markovskii's salinometer and suggested simplifications of the standard method] Metod opredeleniia zasolennosti pochvogruntov pri pomoshchi solemera Markovskogo i predlagaemye uproshcheniia standartnoi metodiki. Moskva, Giprovodkhoz 1963. 17 p. (MIRA 17:7)

KAIACHEV E.A., pochvoved

BKGM-63-2 hydraulic drill and crane for soil and meliorative surveying. Trudy Giprovodkhoza no.25;38-40 \*63.

(MIRA 18:6)

GUSENKOV, Ye.F.; KALACHEV, B.A.

Characteristics of soil studies in arid regions. Pochvovedenie no.8:1-10 Ag 165. (MERA 18:9)

1. Vsesoyuznyy gosudarstvennyy proyektno-izyskateliskiy i nauchno-issledovateliskiy institut vodokhozysystvennogo stroitelistva, Moskva.

31532 S/627/60/002/000/015/027 D299/D304

3,2410 (1559,2205,2805)

Kalachev, B. V., Nikol'skiy, S. I., Pomanskiy, A. A., and Tukish, Ye. I.

and Tukish, ie. 1.

TITLE: On fluctuations in the number of A-mesons in extensive

PART STREETS BY STATE THE STATE OF THE STATE

air showers

SOURCE: International Conference on Cosmic Radiation. Moscow,

1959. Trudy. v. 2. Shirokiye atmosfernyy livni i kas-

kadnyye protsessy, 166-168

TEXT: The results are given of experiments for detecting fluctuations in the number of mesons and electrons in showers with number

of particles  $10^5 \langle N \langle 2 \cdot 10^6 \rangle$ . The experiments were conducted at an altitude of 3860 m (Pamir), in the fall of 1957. The apparatus consisted of hodoscoped counters, placed at 9 observation points. No fluctuations were observed which would have an appreciable effect on the mean values of the investigated quantities. The computed integral number-spectra were compared with the experimental spectra

Card 1/3

AUTHORS:

On fluctuations in the ...

31532 8/627/60/002/000/015/027 D299/D304

for various distances from the shower axis. A larger number of showers with number of particles N<106 were observed than was to be expected by the computations. This may be due either to a considerable contribution of showers, in which the density of the Al-meson component exceeds by many times the mean density as determined by Yu. N. Vavilov et al. (Ref. 2: ZhETF, 32, 6, 1319, 1957), or to the mean density having been underestimated. The second possibility is considered in more detail. Denoting the mean number of u-mesons in the shower by  $\bar{N}_{\mu} = \alpha (N^{\beta})$ , one obtains (in the first approximation) the formula

 $\frac{\Delta C}{C} = \left(n - \frac{2\epsilon}{\beta}\right) \frac{\Delta \infty}{C}$ 

for N < 10 the left-hand side of the formula expresses the relative change in the number of recorded showers, and  $\Delta\alpha/\alpha$  expresses the relative error in determining of. For distances of 40-50 m (as well

Card 2/3

EWT(1)/EWG(k)/BDS/ES(w)+2 AFFTC/ASD/ESD-3/AFVI/8SD Pz-4/Pab-4/Pc-4/Pi-4 AT/IJF(C) ACCESSION NR: AP3005247 8/0056/63/045/002/0083/0087 AUTHOR: Kalachev, B. V. Investigation of pulsed discharge in a high-velocity sir stream Zhur. eksper. 1 teoret. fiz., v. 45, no. 2, 1963, 65-87 TOPIC TAGS: air stream, eir flow, pulsed discharge, electric breakdown, prebreakdown phenomena, prebreakdown process, luminescence, discharge column ABSTRACT: Pulsed discharges and prebreakdown phenomena have been investigated in supersonic and zero-velocity air streams. The investigation was carried out with two groups of condensers with capacities of 14,400 muf (I) and 15 mf (II). In case I, current and voltage oscillograms were made and discharge-channel and prebreakdown luminescence were photographed at stream velocities of 0 and 4,5, 3, 1.5, and 0.5 M. In case II, high-speed photography was amployed, and current and voltage oscillograms were made at velocities of 0 and 3, 1.5, and 0.5 M. The following results were obtained: 1) A high-velocity air stream affects the prebreakdown processes in the discharge gap. 2) The chape of a discharge charmel depends on the prebreakdown phase of luminescence and on the velocity and density of the strems. 3) The breakdown voltage depends on the Card 1/2

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AUTHOR: Alferov, V. I.; Bushmin, A. S.; Kalachev, B. V.

ORG: none

TITLE: Experimental investigation of the properties of an electric discharge in an

air stream

SOURCE: Zhurnal cksperimental noy i teoreticheskoy fiziki, v. 51, no. 5, 1966, 1281-

1287

TOPIC TAGS: electric discharge, are discharge, glow discharge, corona discharge, high frequency discharge, volt ampere characteristic, air flow

ABSTRACT: This is a continuation of earlier studies (ZhETF v. 44, 1775, 1963) and is devoted to discharges between electrodes in an air stream. The measurements were made with apparatus described in the earlier paper, at an air velocity 600 m/sec (Mach number M = 3), air densities 0.127, 0.27, and 1.29 kg/m³, and currents not exceeding 5 amp. Particular attention was paid to conditions under which transitions take place between pre-breakdown (streamer), spark, nonstationary-arc, and diffuse (glow) discharges. The tests consisted of obtaining the volt-ampere characteristics of the discharge, oscillograms of the current, and photographs of the discharge. The tests show that pre-breakdown discharge occurs at sufficiently high voltage on the electrodes in the air stream and is similar in character to corona discharge. It changes either into a spark or a diffuse discharge. At low velocities (~7 m/sec) a discharge occurs with pinched channel, but the discharge is unstable, the arc being carried away by the

Card 1/2

ACCESSION NR: AT4013175

\$\\$/3059/63/000/000/0158/0164

AUTHOR: Gremilov, D. I.; Kalachev, D. M.

TITLE: Measuring the average coefficient of heat loss of liquid metals by the heat-exchanger method

SOURCE: Zhidkiye metally\*. Sbornik statey. Gosatomizdat, 1963, 158-164

TOPIC TAGS: heat loss, heat transmission, liquid metal, heat exchanger

ABSTRACT: Experimental determination of the coefficient of heat loss by direct measurement of the surface temperature of the heat exchanger is difficult in some cases, especially when working with liquid metal heat carriers with high coefficients. The average coefficient of heat transmission may be much easier to determine in simple heat-exchangers. The article describes a method for finding the average coefficients of heat loss for different rates of monophasic turbulent flow of liquid metal in channels of a given shape on the basis of experimental measurement of the coefficients of heat transmission. Given that the coefficient of heat transmission (K) is related to the coefficient of heat loss (a) by the formula

$$\frac{1}{K} = \frac{1}{a} + R$$

(1)

Card 1/2

L 11856-66 ENT(1)/ENT(m)/EPF(n)-2/EWA(d)/EWP(t)/EWP(z)/EWP(b)/ETC(m) ACC NR. AT6001353 MAN DE VALK SOURCE CODE: UR/0000/65/000/000/0063/0065 JG/GS Kelecher, D. M.; Kudryavtsev, AUTHOR: Yakubovich 19 19735 44,55 Central Boiler and Turbine Institute im. I. I. (Tsentral'nyy kotloturbinyy institut) Politunov TITLE: Application of a method for high frequency induction heating of metallic heat carriers SOURCE: Teplo- i massoperenos. t. 1: Konvektivnyy teploobmen v odnorodnoy srede (Heat and mess transfer. v. 1: Convective heat exchange in an homogeneous medium). Minsk, Nauka i tekhnika, 1965, 63-65 TOPIC TAGS: heating, liquid metal, heat carrier ABSTRACT: In industrial practice for heating in a high-frequency magnetic field, the specific heat flux is practically independent of tempersture and can reach values up to approximately 107 kilowatts/meter". The article describes experiments made with laboratory equipment on a heavy metal alloy and on a light alkali metal. The inductor in the experiments was a solenoid with a diameter of 0.065 meters and a length of 0.450 made from a copper tube with a cross section of 10 x 10 and a wall Card 1/2

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ACC NR. AT6001353

thickness of 0.0015 meters. In the heavy alloy loop, the coil of the inductor covered a section of the alloy loop, which consisted of a tube with a diameter of 0.05 meters and a wall thickness of 0.0025 meters, with a diameter of U.U. meters and a wall throwness of U.U. meters and a wall throwness of U.U. meters and a wall throwness of U.U. meters and at an angle of approximately 30 to the vertical and made of Kh18N1OT steel. The light meter was heated by the inductor in a vertical tube with a length of 0.5 meters and an outside diameter of 0.000 cal tube with a length of 0.5 meters and an outside diameter of 0.000 meters and made of Kh18N1OT steel. The voltage on the leads of the high frequency generator could be set within the limits of 0 to 750 volts. Measurements were made of the power of the generator, the voltage and current strength, temperatures of the metal and the cooling medium at the inlet and outlet of the inductor, and the feed rates of the metal. and the cooling medium. For the heavy alloy, the load on the generator was varied within the limits of 25 to 80 kilowatts. Five series of runs were made with a total duration of 110 hours. The runs were made at a constant rate of feed of the elloy equal to approximately 20,000 kg/hour Depending on the conditions, the temperature of the ellow varied from 473 to 773°K. For the light metal the load was 80 kilowetts, the average to 773°K. age temperature in the hester was approximately 11230K, and the feed rate of the metal was about 2,000 kh/hour. The inductor was operated under these conditions for approximately 150 hours. Results are shown It is concluded that the method is suitable for practical graphically. Orig. art. has: 2 figures. application. SUBM DATE: 31Aug65/ ORIG REF: 003/ SUB CODE: 20/

# KALACHEV, F. Reliable support of the party organization. NTO 4 no.5:22 My '62. 1. Sekretar' partiynogo komiteta sovkhoza "Gigant". (Sal'sk District—State farms)

# Experience of the "Pervomaiskaia" Factory in increasing the operative capacity of the spinning equipment. Tekst.pre. 25 no.11:32-35 N '65. (MI 13:12) 1. Glavnyy inzhener Sudogodskoy l'Abryadil'no-tkatskoy fabriki "Pervomayskaya" Verkhne-Volzhskogo seveta narodnogo khozyaystva.

VEIROV, V. S., and G. S. KALACHEV.

Issledovanie vykhodov iz planirovanii samoleta R-5. Moskva, 1935. 39 p., illus., tables, diagrs. (TSAGI. Trudy, no. 244)

Summary in English.

Title tr.: Investigation of pull-out from dives of the R-5 airplane.

QA911.M65 no. 244

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

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KALACHEV, G.S.

O prodol'noi dinamicheskoi ustoichivosti samoleta. Moskva, 1935. 64 p., tables diagrs, (TSAGI. Trudy, no. 235)

Summary in English.

Bibliography: p. 63-64.

Title tr.: Contribution to the problem of dynamic longitudinal stability of an airplane.

QA911.165 no.235

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955

KALACHEV, G.S.

O mere prodol'noi dinamicheskoi ustoichivosti samoleta. Moskva, 1938. 60 p., tables, diagrs. (TSAGI. Trudy, no. 365)

Title tr.: Criterion of the longitudinal dynamic stability of aircraft. QA911.M65 no.365

SO. Aeronautical Science and Aviation in the Soviet Union. Library of Congress, 1955.

KAIACHEV, C.S.

O notere prodol'noi upravliaemosti samoleta pri bol'shikh skorostiakh
poleta. (Tekhnika vozdushnogo flota, 1946, no. 12, p. 21-30, diagrs.)
Title tr.: Loss of longitudinal control of an aircraft in high-speed
rlight.
TL504.Th 1946

SO. Aeronautical Science and Aviation in the Soviet Union. Library of
Congress, 1955.

KALDEHEY, G.S.

KALACHEV, G. S., and I. V. OSTOSLAVSKII.

Prodol'naia ustoichivost' i upravliaemost' samoleta. Dopushcheno v kachestve ucheb. posobiia dlia aviatsionnykh vuzov. Moskva, Oborongiz, 1951. 367 p., tables, diagrs.

Title tr.: Longitudinal stability and control of aircraft.

Approved as a textbook for schools of advanced aeronautical studies.

TL574.S7074

SO: Aeronautical Sciences and Aviation in the Sovdet Union, Library of Congess, 1955.

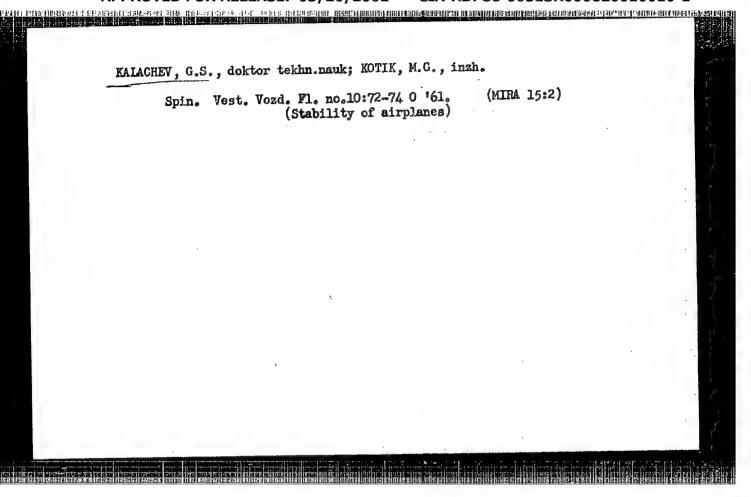
Criteria of Maneuverability (Cont.)	- 580
valuable suggestions and pointers which he used i contains 54 figures and 3 tables. There are 16 r 1 French, 2 English.	n his final revision. The book eferences of which 13 are Soviet,
TABLE OF CONTENTS:	
Introduction	3
Symbols Used	5
I. Maneuverability of an Airplane	9
<ol> <li>Basic principles</li> <li>Equations of maneuverability</li> </ol>	9
3. Selection of the general maneuverabil	ity criteria 20
(a) Family of curves $n_X = f(1)$ number, $n_X$ and $n_Y$ are the loss the x and y axes respectively	factor components along
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KALACHEV, G.S., doktor tekhn.nauk; KOTIK, M.G., inzh.

Steadiness and roll of a plane. Vest. Vozd. Fl. no.5:56-64
My '61.

(Rolling (Aerodynamics))

(Stability of airplanes, Longitudinal)

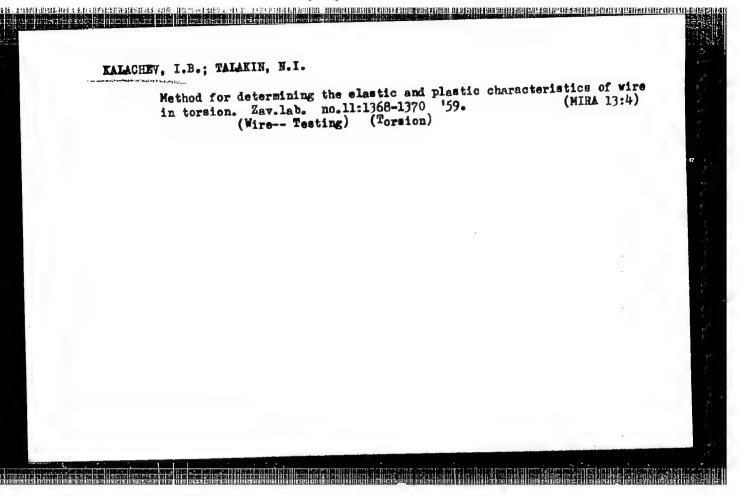


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KALACHEV, G. V.

Kalachev, G. V. -- "Increasing the Milk Productivity of Cows on the Kolkhozes of Kashpirskiy Rayon, Moscow Oblast." Moscow Veterinary Academy. Min Higher Education USSR. Moscow, 1956. (Disseration For the Degree of Candidate in Agricultural Sciences).

So: Knizhnaya Letopis', No. 11, 1956, pp 103-114



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S/032/61/027/005/007/017 B130/B220

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AUTHORS:

Kalachev, I. B. and Shansheyn, B. V.

TITLE:

Methods for testing wire materials for creeping on torsion

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 5, 1961, 582 - 585

TEXT: A device for determining the creep strength of wire materials on torsion is described. Furthermore, the influence of bending stresses occurring together with tangential stresses is dealt with in these studies. A device was built which is based on the principle of an appliance developed by I. B. Kalachev and I. I. Talakin (Zavodskaya laboratoriya, XXV, 11 (1959)) for studying the influence of static torsion upon wire. A spring of exactly defined dimensions, mean diameter D, diameter of the wire d, number of windings i, and lead t, serves as specimen. The stress t caused by a load is defined by the formula

P = T. SDcose,

where  $\varphi$  is the angle of lead. The construction diagram of the apparatusis shown in Fig. 1. The spring 1 is fixed to a hollow rod 2 where two thermocouples 3 introduced and connected with the upper and lower front

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Methods for testing wire...

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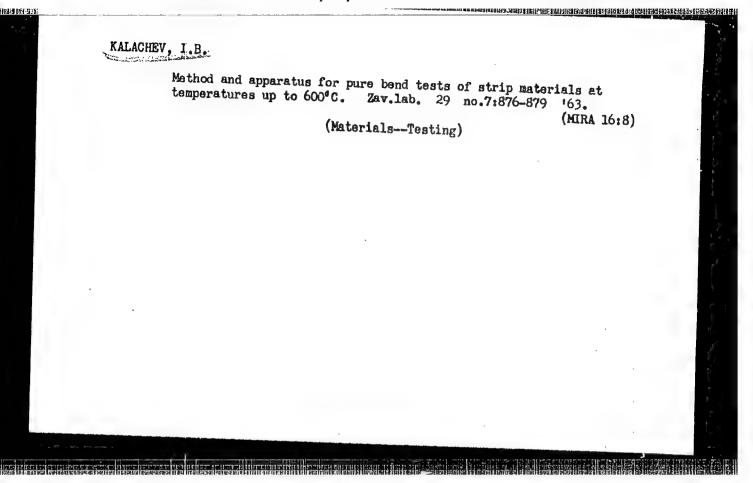
the torsion amounts to 1 - 2 % maximum when the given parameters are used; this may be neglected. Based on the relations found for small deformations, it is possible to calculate the setting of the spring due to bending stresses  $\lambda$  bend and that due to torsion  $\lambda$  tor as well as the relation  $\Lambda$  tor  $\Lambda$  according to S. D. Ponomarev, W. L. Bidermann, and collabotor

rators (Raschety na prochnost! v mashinostroyenil, (stress calculations in mechanical engineering) v. 1, Mashgiz (1956))

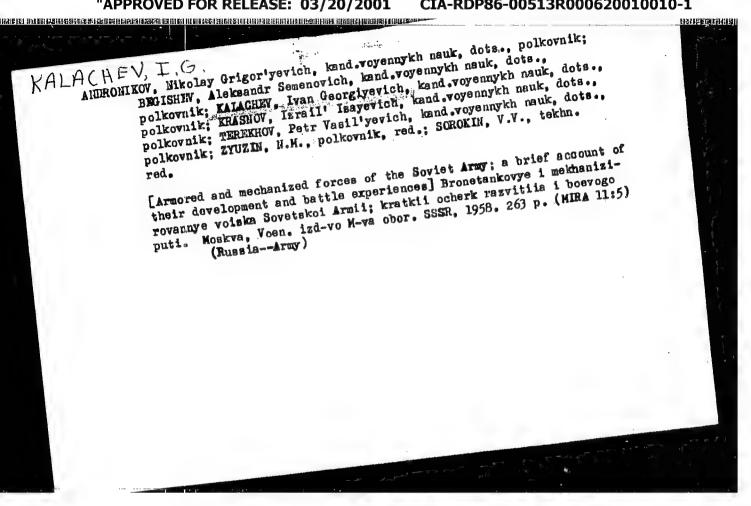
The results obtained for the testing of wire materials for creeping on torsion are plotted in the system of coordinates, relative angle of thrust to time t. T is calculated based on the formula

 $\gamma = \lambda \cdot \frac{d}{\pi D^2 i}.$ 

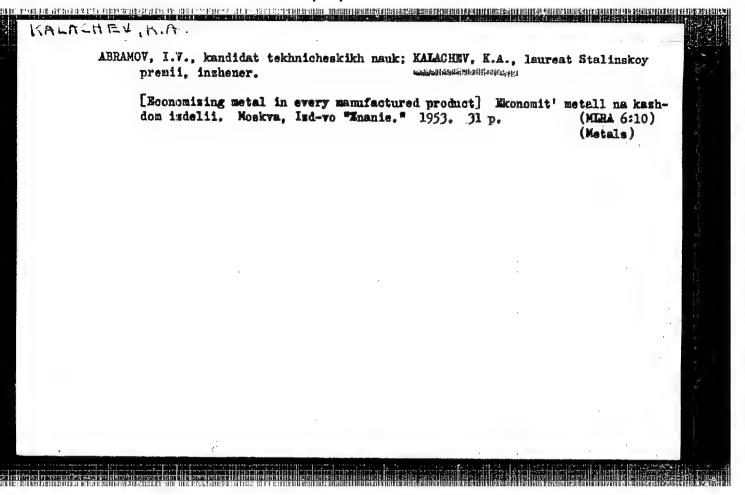
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Authors	Chorin Sh Ch & Karana
	Chokin, Sh. Ch.; Kalachev, I. S.; and Kiktenko, V. A.
Title	Regarding the problem of irrigation of the central Kanakhatan with Irtych
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Panindian .	
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KALACHEV, K. A.

7646. KALACHEV, K. A. -- Kholodnaya shtampovka v mashinostroyenii. pod red. V. D. Golovleva. M., mashgiz. 1954. 280 s. s ill. 27 sm. 8.000 ekz. 13R. 50K. v per. -- pered zagl. avt: G. N. Rovinskiy, S. V. Alabin, V. V. Filippov. K. A. Kalachev I V. G. Zybin. -- Bibliogr: s. 278(30 nazv.) -- (55.3908)P 621.96 & (016.3)

SO: Knizhnaya Letopsis', Vol. 7, 1955

ROVINSKIY, G.N.; KALACHEV. K.A.

Mechanical collection of waste in cold stamping large-sized automobile parts. Avt. 1 trakt. prom. no.7:38-40 JL '56.

(HIRA 9:10)

1. Moskovskiy avtosavod imeni I.A. Likhacheva. (Sheet-metal work)

\$9V/113-59-2-20/20

AUTHOR:

Kalachev. L.D., Lapidus, V.I., Adamovich, A.V., Chapkevich, V.A., Dymshits, I.I., Candidates of Technical Sciences,

Korchemnyy, L.V., and Konev, B.F.

TITLE:

Critique and Bibliography (Kritika i bibliografiya)

PERIODICAL:

Avtomobil'naya promyshlennost', 1959, Nr 2, pp 47-48 (USSR)

ABSTRACT:

This is a critical review of the "Raschët i konstruirovaniye mashin, sbor." (Calculation and Design of Machines, Symposium), published by the Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Politechnical Institute), Volume 10,

Mashgiz, 1957.

ASSOCIATION:

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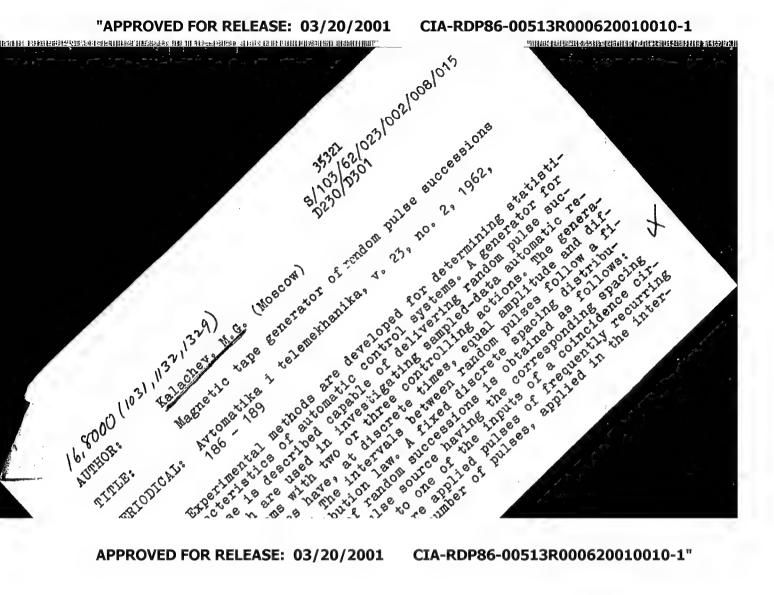
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#### KALACHEV, L. D.

"Investigation of lifetime conditions of a fuel film on a heated surface."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Sci Automobile and Automotive Res Inst.



**APPROVED FOR RELEASE: 03/20/2001** 

Magnetic tape generator of random ...

S/103/62/023/002/008/015 D230/D301

val between  $k_{\rm th}$  and  $(k+1)_{\rm th}$  pulses of regular succession result as one pulse of random succession at the time  $t_{k+1}$ . When the regular pulse spacing is sufficiently small the discrete spacing distribution envelope for the transformed random succession will correspond to the density of probability of the initial random succession. Different polarities of discrete succession of pulses are obtained by routing the random pulses form the source into two channels by means of a relay. The relay switching frequency should be substantially higher than the pulse repetition frequency of the regular succession. For a pulse incident at the time  $t_k$  into one channel the other channel is closed up to the time  $t_{k+1}$ , e.g. using a relay with switching frequency of 50 cycles, the pulse repetition of the regular succession should not exceed 5 cycles. Recording and reproduction of random pulse successions using magnetic tapes are discussed. Controlled measurements on reproducing recordings yield results as follows: 1) The frequencies of the positive and negative pulses of random successions appearing are practically the same.

Card 2/3

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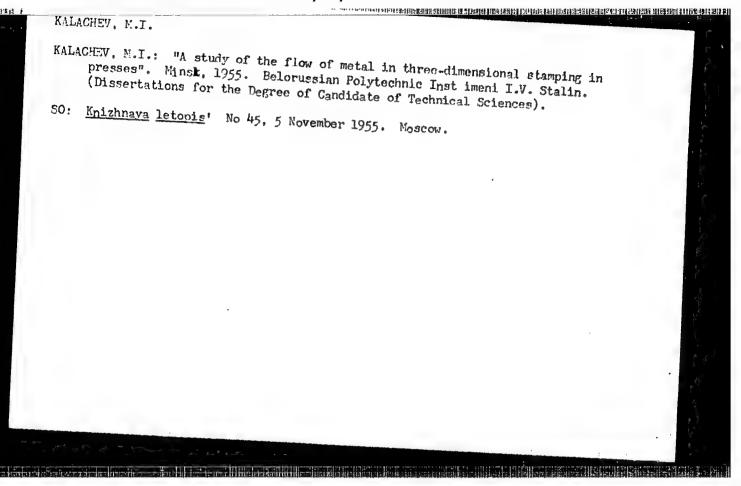
Magnetic tape generator of random ...

2) The distribution of the number of pulses in fixed time interval follows discrete Poisson's law with adequate degree of accuracy; a table shows experimentally obtained pulse indication frequency values t (t = 1, 2, 3, ...) in the interval of 20 seconds and the corresponding probabilities. There are 2 figures, 1 table and 2 Societ-bloc references.

SUBMITTED: June 3, 1961

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Card 3/3



Kalachev, M. I. and Bugdanov, Ye. S.

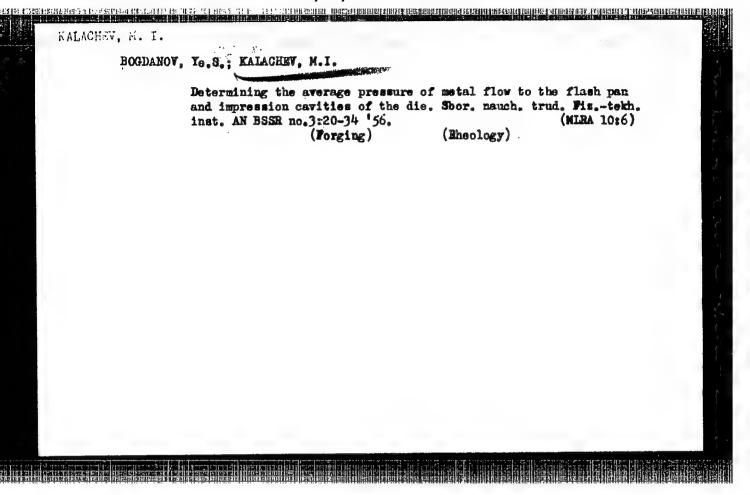
"Forging in a Die With a Permanent 'Flash Saddle' for the Outlet of Excess Metal", pp 81-90, Sbornik Nauchnykh Trudov, Vol 2, Minsk, Izd.-vo. Akademii Nauk B.S.S.R., 1955, 250 pp.

BOGDANOV, Ye.S.; KALACHEV, M.I.

Stamping with dies having a permanent hole for the removal of excess metal. Shor.nauch.trud. Fiz.-tekh.inst. AN BSSR no.2:81-90 '55.\*

(MIRA 10:1)

(Sheet-metal work) (Dies (Metalworking))



SOV/137-57-10-19108

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 10, p 97 (USSR)

AUTHORS: Bogdanov, Ye.S., Kalachev, M.T.

TITLE: Metal Flow in Trimmers and Methods of Calculation for Hot

Trimming in Presses (Techeniye metalla v obloynom shtampe

i metodika rascheta goryachey obloynoy shtampovki na

pressakh)

PERIODICAL: Sb. nauchn. tr. Fiz.-tekhn. in-t AN BSSR, 1956, Nr 3, pp

35-47

ABSTRACT: An examination is made of the conditions for the filling of

the cavity and the flash pan of an open die. A chart is compiled for determination of the amounts of metal entering the pan and the sunk portions of the die. Equations are developed for determining resistance to deformation in the flash pan and the die cavity, also for other purposes, and these are recom-

mended for analysis of the open-die drop-forging process.

Ya.O.

Card 1/1

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SEVERDENKO, V.P., akademik, red.; KALACHEV, M.I., red.; YUSHKOV, A.V., red.; VOIK, A.A., red.; GURVICH, G.Ye., tekhred.

[Papers of the Conference on the Improvement of the Technology of the Working of Metals under Pressure] Materialy Konferentsii po usovershenstvovaniin tekhnologii obrabotki metallov davleniem. Minsk, Izd-vo Belgosuniv. im. V.I.Lenina, 1958. 111 p.

1. Konferentsiya po usovershenstvovaniyu tekhnolegii obrabotki metallov davleniyem.

(Metalwork--Congresses)

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 72 (USSR) SOV/137-58-12-24460

AUTHOR: Kalachev, M. I.

TITLE:

Distribution of Normal Stresses in the Line of the Parting Plane of a Trimming Die (Raspredeleniye normal nykh napryazheniy v ploskosti raz"yema obloynogo shtampa)

PERIODICAL: Sb. nauchn. tr. Fiz-tekhn. in-t AN BSSR, 1958, Vol 4, pp 72-82

ABSTRACT: Equations are presented for the calculation of the normal stresses (S) on the sprue (Sp) and the total pressure in the cavity of a die; graphic distributions of these S are also presented. An experimental diagram of the drop-forging of lead is plotted, based on the assumption that it flows into a conical tube. It is established that the mean pressure in the plane of the parting line remains constant regardless of any change in the diameter of the forging, while in free upsetting it increases with increasing diameter of the forging; the value of the mean pressure in the die cavity and on the Sp is determined by the geometrical parameters of the Sp, and therefore the latter should constitute the starting value in determining the required drop-forging Card 1/1

M. Ts.

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SOV/137-59-1-1660

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 220 (USSR)

AUTHOR: Kalachev, M. I.

TITLE: Finless Forming and Possibilities of its Employment in Hot-

stamping Crankshaft Presses (Bezobloynaya shtampovka i vozmozhnost'

yeye primeneniya na krivoshipnykh goryacheshtampovochnykh

pressakh)

PERIODICAL: V sb.: Materialy Konferentsis po usoversh. tekhnol. obrabotki

metallov davleniyem Minsk, Belorussk. un-1, 1958, pp 89-97

ABSTRACT: The author examines the drawbacks which limit the employment of

finless stamping. Various designs of dies equipped with a permanent slot are proposed: their employment would make it possible to perform finless stamping in presses and would eliminate the need for production of blanks with exact dimensions. Formulae for the com-

putation of the height of the slot and determination of the forming

stresses are given.

M. Ts.

Card 1/1

SOV/137-59-1-1252

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 170 (USSR)

AUTHORS: Yushkov, A. V., Kalachev, M. I.

TITLE: Changes in Mechanical Properties of Steel ShKh-15 as a Function of

the Temperature (Izmeneniye mekhanicheskikh svoystv stali ShKh-15

v zavisimosti ot temperatury nagreva)

PERIODICAL: Sb. nauchn: tr. fiz-tekhn. in-t AN BSSR, 1958, Nr 4, pp 89-94

ABSTRACT: Static mechanical properties  $(\sigma_b, \delta, and \psi)$  of ShKh-15 steel were determined, and its crippling strength under dynamic loading

( $\sigma_{\partial}$ ) at temperatures ranging from 20 to 1200°C was established. The magnitude of the  $\sigma_{\partial}$  was determined by means of upsetting the specimens (30 mm high and 20 mm in diameter) under a drop hammer, the speed of the ram amounting to 6.25 m/sec, in accordance with the formula  $\sigma_{\partial} = A/\epsilon V$ , where A is the work done during the plastic deformation;  $\epsilon$  the degree of deformation (a value of 10% was assumed), and V the volume of the specimen. It was established that at temperatures of 400°, 625°, 950°, and 1200°,  $\sigma_{b}$  amounted to 66

sumed), and V the volume of the specimen. It was established that at temperatures of  $400^{\circ}$ ,  $625^{\circ}$ ,  $950^{\circ}$ , and  $1200^{\circ}$ ,  $\sigma_b$  amounted to  $66^{\circ}$  kg/mm<sup>2</sup>,  $28^{\circ}$  kg/mm<sup>2</sup>,  $10^{\circ}$  kg/mm<sup>2</sup>, and  $3^{\circ}$  kg/mm<sup>2</sup>, respectively, while  $\sigma_{\partial}$  amounted to 54, 54, 25, and  $16^{\circ}$  kg/mm<sup>2</sup>, respectively. T. F.

Card 1/1

5/137/61/000/007/009/072 A060/A101

AUTHORS:

Severdenko, V. P.; Kalachev, M. I.

TITLE:

Experimental stress determination during pressure treatment of

metals

PERTODICAL:

Referativnyy zhurnal, Metallurgiya, no. 7,1961,2, abstract 7D7 ("Tr. Konferentsii: Tekhn. progress v tekhnol. prokatn. proiz-va".

Sverdlovsk, Metalurgizdat, 1960, 17-26)

Experimental methods are worked out for determining the principal stresses under manifold compression in the case of small and large deformations. The construction of a set-up is given by means of which the principal stresses at different points of the deformed volume may be determined. This set-up also makes it possible to simulate some processes of pressure treatment of metals. A compact measuring head - probe is used for the direct measurement of principal stresses inside the deformed body. A longitudinally bent platelet with small initial deflection is used as the stress measuring element. Foil sensors were glued onto this plate, thus making it possible to manage without an amplifier. Experiments in measuring the principal stresses were carried out upon Pb and Sn

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Experimental stress determination ...

S/137/61/000/007/009/072 A060/A101

Experimental stress determination ...

specimens. The amount of deformation is  $\sim 1$  percent at a deformation rate of 0.7 percent/min. The hydrostatic pressure for the Pb specimens varied between the limits of 4-18 kg/sq mm, for the Sn specimens -7.5-12 kg/sq mm. Preliminary experiments have shown that the values of 6 determined from the second plasticity condition by substituting the principal stresses in the corresponding formula differ from the actual values of 6.

Yu. Manegin

[Abstracter's note: Complete translation]

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SEVERDENKO, V.P.; KALACHEV, M.I.

Measuring normal strains during plastic deformation. Shor. nauch. trud. Fiz.-tekh.inst. AN BSSR no.7;3-8 '61. (MIRA 15:7) (Deformations (Mechanics)) (Strain gauges)

S/571/61/000/007/002/010 1048/1248

AUTHORS:

Severdenko, V.P., and Kalachev, M.I.

TITLE:

The stress-strain diagrams of lead, tin, and alumin cum

《大学》(1982年) 1982年 1988年 1988年

under different stress conditions.

SOURCE:

Akademiya nauk Belaruskay SSR. Fiziko-tekhnicheskiy institut. Sbornik nauchnykh trudov. no.7. 1961. 13-24

TEXT: The stress-strain diagrams of pure Pb, Sn, and Al were prepared for tensile, compressive, and torsional stresses, using cast, annealed cylindrical specimens. The surfaces were lubricated to reduce external friction. The stress rates ranged from 6x10 to reduce external friction. The stress rates ranged from 6x10 to reduce external friction. The stress accompanied by a decrease in axial stress occurred on removal of the load; as shown on the oscillograms for variations of stress at constant strain, on the coscillograms for variations of stress at constant strain, the three-axial compression stress-strain curve of Al closely followed the linear compression curve; the deviation was less than 3-4%. Calculations of process parameters for three-axial compression should be based on data from linear compression tests. In

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The stress-strain diagrams...

the case of Pb there was agreement between the curves for compression and tension but the torsion curve was much above. In the case of Sn the torsion curve was beneath. In all tests the distances between the curves decreased with increasing true maximum strain, i.e. it decreased with the breakdown of the initial cast structure. The conclusion is that both the rate of decomposition of the cast structure and the anistropy are determined by the nature of the metal strained. There are 7 figures and 1 table.

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ACCESSION NR: AP4040501

s/0136/64/000/006/0075/0076

AUTHORS: Severdenko, V. P.; Kalachev, M. I.; Ankut, P. A.

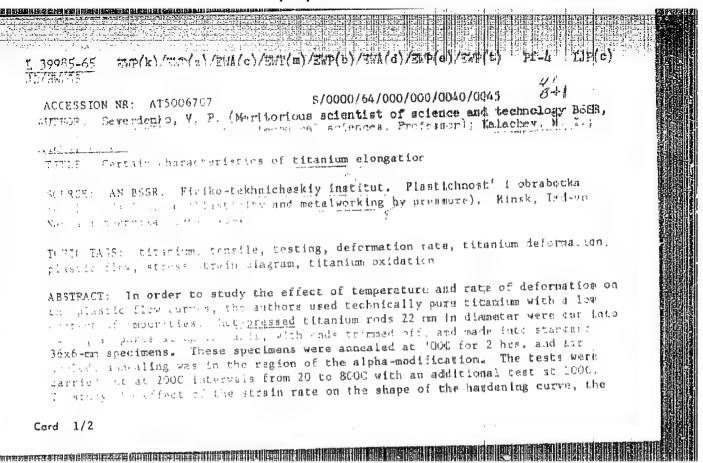
TITIE: The effect of temperature and deformation rate in the elongation of technically pure titanium

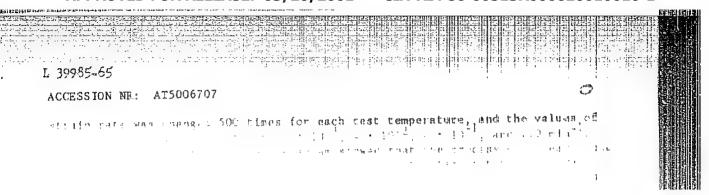
SOURCE: Tavetny ye metally\*, no. 6, 1964, 75-76

TOPIC TAGS: titanium, temperature effect, elongation, elasticity, titanium VTI 1, electron potentiometer EPD 12, metal failure

ABSTRACT: The variation in titanium VTI-1 mechanical properties during its deformation was studied in the temperature range of 20-8000, with the deformation rate varying from 4 x 10<sup>-3</sup> to 2.0 min<sup>-1</sup>. The temperature was mensured by a platinum-platinorhodium thermocouple and a D. C. potentiometer. An electron potentiometer EPD-12 was used for a temperature-regulating device. The variation in temperature resulted not only in an increase of decrease of metal resistance to flow but also in certain changes in the alignment of the indicator curves as shown on the metal deformation diagram (see Fig. 1 on the Enclosure). The "limit of physical flow," appearing as a small flat zone in the temperature range of 100-4000, disappeared at 6000. In the latter case, the rate of 4 x 10<sup>-3</sup> min<sup>-1</sup> caused a Cord 1/3

..... ACCESSION NR: AP4040501 complete metal recrystallization, which proceeded more rapidly than the hardening process. The shape of the indicator curve was similar to that for hot deformation, and the plasticity of the metal was practically unlimited. The increase in the deformation rate at constant temperature raised the resistance to deformation and lowered the metal plasticity. This phenomena was explained by the fact that under these conditions metal recrystallization could not be completed during the deformation period; at constant temperature its velocity remained constant while that of the metal flow was increased tenfold. Further increase in the deformation rate to 2.0 min<sup>-1</sup> did not affect the shape of the curve; there was a tendency to lower the metal strength, but otherwise the nature of the deformation development and of metal failure remained the same as at the rate of 4 x 10-3 min -1. At 8000 the deformation proceeded without metal hardening, regardless of the rate. Orig. art, has: 2 figures. ASSOCIATION: none SUBMITTED: 00 DATE ACQ: ENGL: NO REF SOV: SUB CODE: OTHER:





ASSOCIATION: None

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 ACC NR: AT6036701

strain. These data are compared to the well known equation

 $\sigma_v = \sigma_0 + k \ln (V_d/V_0),$ 

where  $\sigma_0$ , k, and  $V_0$  are constants and  $V_d$  >  $V_0$ . The VTI-1 titanium was sensitive to temperature changes, since the dependence was satisfied for all strain rates but not for all temperature ranges. In the range  $20\text{-}400^{\circ}\text{C}$ ,  $\sigma_i = f(\ln V_d)$  was linear with k decreasing as a function of temperature. At temperatures -110 and -196°C the strain rate did not affect the stress; however, at  $600^{\circ}\text{C}$  and especially at  $800^{\circ}\text{C}$ , the stress rose sharply as a function of  $\ln V_d$ . The true uniform deformation in tension, given as a function of temperature, went through a maximum at 175-300°C, depending on the strain rate. At higher strain rates the maximum occurred at lower temperatures. The effect was caused by deformation aging and twinning which together changed the slip behavior during plastic deformation. The limiting plastic deformation in compression, marked by the first appearance of cracks, was minimal in the 175-300°C range. This corresponded with the minimum in tensile plasticity. At about 400°C, the plasticity increased. The torsion results closely paralleled those obtained in tension and compression. Orig. art. has: 5 figures, 1 formula.

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SUBH DATE: 08Jul66/

ORIG REF: 002/

OTH REF: 002

**Card 2/2** 

#### ACC NR: AT6036702

tended to align parallel to the maximum deformation direction, while at higher deformations the orientation increased and the angle between the axis of the sample and the needles decreased. In the zone of maximum deformation the twin size was small relative to the grain size. This was true especially of compressive loading, where two prominent zones occurred. At the ends of the sample the deformation was less than at the center. In the temperature range of 20-400°C the microstructure of deformed samples was a function of the stress state. Twins were absent in tension where slip occurred more readily. Much twinning occurred in torsion at 20-400°C, since shear was more conducive to twin formation; however, at high shear deformations and at temperatures above 400°C, slip became the dominant mechanism. Zones were again apparent during compression at 20-400°C. Only at the center did large deformations cause grain fragmentation and dark etching shear bands were observed along the maximum shear planes. Upon closer examination, these bands revealed micro- and macrocracks. The range 600-800°C marked the initiation of recrystallization in titanium. The recrystallization tendencies varied as a function of strain rate at 600°C, but were stable at all strain rates at 800°C. Torsion testing at 800°C differed from tensile or compressive testing in that slip and twinning occurred simultaneously to produce two new twin planes. art. has: 3 figures.

SUB CODE: 11/

SUBH DATE: 08Jul66/

ORIG REF: 001

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ACC NR: AP7003281

(N)

SOURCE CODE: UR/0250/66/010/012/0941/0944

AUTHOR: Severdenko, V. P. (Academician AN BSSR); Kalachev, M. I.; Ankut, P. P.

ORG: Physicotechnical Institute, AN BSSR (Fiziko-tekhnicheskiy institut AN BSSR)

TITLE: Influence of the rate of deformation on the change in the structure of titanium

SOURCE: AN BSSR. Doklady, v. 10, no. 12, 1966, 941-944

TOPIC TAGS: titanium, tension stress, material deformation, temperature dependence, crystal lattice structure, plastic flow, recrystallization, twinning/ VTI-I titanium

ABSTRACT: This is a continuation of earlier work (Tsvetnyye metally [Nonferrous Metals] no. 6, 1964), where it was established that VTI-I titanium has an anomalous behavior under tension at 600C, indicating variations in the mechanism of deformation as a result of the peculiar crystal structure and properties of the crystal lattice of titanium. To check on the changes occurring in the structure of the metal during plastic flow, the authors carried out a metallographic investigation of titanium, deformed at 600C with different rates of tension. Study of the microstructure of the sample indicates that both hardening and softening recrystallization processes occur in the metal and their net result is to increase the plasticity of the metal. The relative magnitudes of the hardening and softening of the metal depend on the deformation rate. The results also indicate the presence of intense twinning and occurrence of gliding processes in the metal. When the titanium is stretched at a

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